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GRAIN Sanitation Program

of the Food and Drug Administration
U. S. DEPARTMENT OF
HEALTH, EDUCATION
AND WELFARE

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GRAIN IS FOOD—KEEP IT CLEAN!

GRAIN SANITATION PROGRAM

Contamination levels for court action stated under "Carload Sampling" in Section 4 of this pamphlet are effective for the period ending June 30, 1956.

The Problem

Clean foods have been sought by mankind from the earliest times. Instinctively we shun that which is spoiled or contaminated. In the Bible we read of ancient dietary laws that were really sanitary precautions.

The packaged food products of today are the cleanest foods of all history. There continue to be, however, serious problems of food sanitation, particularly with bulk-handled raw food commodities. Outstanding among these is the problem of keeping food grains from being contaminated by such pests as insects, birds, and rodents. All who are concerned with storage, shipment, and processing of the "staff of life" inevitably must come face to face with this problem.

Our object must be to progressively improve the sanitary handling of grain so as to keep cereal foods as clean as possible.

1. The Law

Our national pure food law, the Federal Food, Drug, and Cosmetic Act, requires that foods shipped in interstate commerce be wholesome and clean, and handled at all times under sanitary conditions to prevent contamination with filth. This law applies to our food grains, and to cereal foods prepared from them, as well as other foods.

2. Why a Clean Wheat Program?

Wheat is our No. 1 food grain. For this reason a program of education and law enforcement has been started to promote the sanitary handling of wheat.

A natural reaction of farmers and grain handlers is, "Why not let the flour mills take care of this problem—they have laboratories to test the grain and equipment for cleaning it?"

The truth is that mill equipment and cleaning procedures do not remove all of the extraneous matter left by insects and rodents in the grain.

This means that we cannot have the clean cereal foods which the consumer expects and which the law requires, unless we start with clean grain and keep it clean.

There is an enormous loss of grain that is eaten and contaminated by rats, mice, birds, and insects. These public enemies are estimated to destroy as much as 10 percent of the entire crop of food grains. Savings from preventive measures will more than pay the costs of clean-up, screening, rat-proofing, bin sprays, grain protectants, fumigants, and rodenticides.



The microscope reveals insect fragments and tell-tale rodent hairs in samples of flour milled from contaminated grain.

3. The Program

The Food and Drug Administration's cereal sanitation program actually began shortly after the passage of the current law in 1938, with the inspection of bakeries, macaroni plants, and flour and cornmeal mills. Most firms in these industries are doing an excellent job of preventing contamination in their plants. As sanitation improved at the manufacturing level, the program was gradually extended to include grain.

Thus, while attention to sanitation in bakeries and flour mills continues, we are now well into the WHEAT SANITATION phase of the long-term program. This consists of two parts:

ELEVATOR INSPECTION.—To check on sanitary conditions in elevators and whether proper care is being exercised to prevent contamination. This began in the spring of 1952. Operators of violative elevators may be prosecuted or enjoined from further violations, and contaminated grain shipped from such elevators may be seized.



What happens when grain storage is neglected—a family of mice nesting on top of the wheat.

CARLOAD SAMPLING.—To check on the cleanliness of wheat for food use, moving in the normal channels of interstate commerce. Cars which are heavily contaminated are seized by Federal court order, and upon court order may be diverted to animal feed or non-food uses.



FDA inspector sampling a car of wheat. Five probings are taken from each car.

4. Contamination of Wheat Which Will Result in Court Action

ELEVATOR INSPECTION.—Under the elevator inspection program, elevators are judged not only by the amount of filth detectable in the wheat they ship, but also by the sanitary condition of the elevator and the care taken to protect grain from contamination. Inspectors check on such factors as rodent- and bird-proofing, fumigation practices, regular cleaning of bins, condition of stored grain, and care taken to segregate unfit wheat.

Continued operation of a filthy elevator or deliberate mixing of contaminated grain with clean grain are offenses which may lead to court action.

CARLOAD SAMPLING.—Effective through June

30, 1956, wheat sampled under the program will be seized, regardless of the sanitary condition of the elevator from which it came, if it contains:

1. More than 2 rat or mouse excreta pellets per liquid pint of grain; or
2. Two percent or more of insect-damaged kernels, as determined by methods presented under the Official Grain Standards of the United States for wheat.

5. To the Farmer:

WHAT THIS MEANS TO YOU.—Most of you do not ship your grain directly in interstate commerce. However, you are key men in the sanitation program because, if this grain becomes contaminated in your bins, some of this contamination may carry right on through to somebody's table. Good sanitation further along the line cannot accomplish the goal of this program unless you deliver clean grain.

The country elevator operator who ships your wheat in interstate commerce will be violating the law if he buys unfit grain from you for human food use. He is therefore going



The wheat from each probe is thoroughly mixed in this machine called a Jones Divider so that the sample will be truly representative.

to be more critical than heretofore of the sanitary quality of the grain you bring in, and he will need your cooperation in order to discharge the responsibility placed on him by the law. Do not expect him to pay food grain prices for grain which he cannot legally ship as food. To be eligible under the loan and support program of the U. S. Department of Agriculture, grain must meet the current Food and Drug Administration requirements.

Protect your grain by taking these precautions:

Store in clean, weather-tight, properly ventilated structures.

Keep out rats, mice, and birds with sheet-metal or screening on all openings.

Do not allow old grain to become a breeding ground for insects. Clean out combines, trucks, and bins before use; use bin sprays, and fumigate when necessary.

Do not mix insect-infested grain with new grain.

Before turning or adding grain or removing grain from a bin, examine surface of the grain already present for rodent or bird excreta. If contamination is found, carefully shovel off the top 6 inches of grain, and more if necessary, and use this contaminated grain for feed. But don't neglect real preventive measures to rid your premises of the pests!

6. To the Elevator Operator:

WHAT THIS MEANS TO YOU.—If the farmer, or another elevator, delivers clean grain to you, your job is to protect it from contamination and pass it on to the terminal elevator or mill in a clean and wholesome condition. If you are offered and buy unfit wheat it is your responsibility to see that this grain is binned separately for feed or some non-food use.

If you permit wheat to become contaminated in your bins, or if you mix unfit grain with clean food grain, the efforts of the farmer, other elevator operators, the miller and the baker to keep the grain clean will be futile.

The extra care you give in the handling of food grains is repaid in the care required by the law from others who prepare and handle the foods consumed by your family.

It is your responsibility to:

Exercise care in the purchase of wheat and segregate that which is unfit.

Keep your elevator free from rats, mice, birds and insects, and from refuse and hiding places in which these pests may live and multiply.

Inspect your grain regularly for insect infestation and fumigate whenever necessary.

Clean out boxcars and trucks before loading clean grain so as to get rid of old, insect-infested grain remaining in the car. If car cannot be cleaned it should be rejected.

What to look for when examining grain for sanitation—rodent pellets and insect-damaged kernels.





The pellet count is made by spreading the grain on a piece of white paper.

7. How to Examine Your Grain

FOR RODENT EXCRETA PELLETS.—You may determine whether grain has become contaminated by rat or mouse excreta pellets simply by spreading a sample, a little at a time, on a piece of clean white paper, in a good light, and looking for the pellets. The official method calls for the use of one-pint (liquid measure) portions of grain. In the case of carload lots, the Food and Drug Administration examines 1 pint from each of 5 separate probings taken from different parts of the car.

FOR INSECT DAMAGE.—Heavy insect infestation in grain is readily apparent. Watch for kernels with insect holes and feeding damage, along with the adult insects, alive or dead. There may be heavy infestation *inside* the kernels, which may not be so apparent at the terminal elevator or mill if the insect bodies and grossly damaged kernels have been removed by screening, blowing, etc.

First, make a casual inspection of a few handfuls of grain from various parts of the lot. Only very obviously and badly damaged grain



Insect damage is determined by weighing the damaged kernels taken from a 50-gram sample.

is being proceeded against under the present program, unless an insanitary elevator charge is also involved. If on casual inspection a considerable amount of insect damage is apparent, you may estimate the percent of damage by a kernel count on a small sample, segregating the individual kernels showing insect damage.

The official inspection procedure calls for use of a 50-gram portion, and for weighing the damaged kernels. Since the damaged kernels will weigh less than sound kernels, the percent damage by count will ordinarily be considerably higher than by weight. Therefore, if the grain shows over 2-percent damage by count, the determination should be checked by the official procedure. Balances suitable for these weighings are available at reasonable cost. Consult your county agent.

If any live insects or other evidence of active infestation is found, be sure to fumigate and take precautions to check this infestation and to prevent it from spreading into other bins.

8. For Further Information

Consult your county agents and State extension services for additional information on this subject. The following additional printed matter on how to protect your grain from contamination is available upon request. Ask your county agent, or write direct to the agency listed:

U. S. Department of Agriculture
Washington 25, D. C.

Farmers' Bulletin 1260—Stored Grain Pests
Farmers' Bulletin 2071—You Can Store Grain
Safely on the Farm

Leaflet 331—Drying Shelled Corn and Small
Grain with Heated Air

Leaflet 332—Drying Shelled Corn and Small
Grain with Unheated Air

Leaflet 345—Insects in Farm Stored Wheat
EC-24—Insect Control in the Country Wheat
Elevator

Station Bulletin 425—Control of Stored Grain
Insects in the North Central States

U. S. Department of the Interior
Fish and Wildlife Service
Washington 25, D. C.

Reprint—Timely Films and Publications on
Rodent Control, by John C. Jones (*Pest
Control*, July 1954)

Wildlife Leaflet 349—Control of House Mice
(October 1953)

Leaflet WL-337—Characteristics of Common
Rodenticides (January 1952)

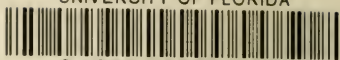
Circular 22—Rats—Let's Get Rid of Them
Conservation Bulletin 19—Rat Proofing Build-
ings and Premises

U. S. Department of Health, Education, and
Welfare

Food and Drug Administration
Washington 25, D. C.

Grain Elevator Check List

UNIVERSITY OF FLORIDA



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